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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,399	05/24/2001	Sung Woong Moon	8733.440.00	9194
30827	7590	11/05/2003	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP			DI GRAZIO, JEANNE A	
1900 K STREET, NW			ART UNIT	
WASHINGTON, DC 20006			PAPER NUMBER	
			2871	

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/863,399

Applicant(s)

MOON ET AL.

Examiner

Jeanne A. Di Grazio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

Priority to Korean Patent Application No. 2000-28072 (May 24, 2000) is claimed.

Response to Arguments

This communication is responsive to Amendment of August 8, 2003.

Claim Objections

Claims 1 and 7 objected to because of the following: Claims 1 and 7 are unclear because of the misplaced modifier “divided into at least two parts.” As the claims currently stand, “divided into at least two parts” may refer to the TCP pads or to the liquid crystal display panel. In other words, one might be led to think that the liquid crystal display panel itself is divided into at least two parts. **Appropriate correction is required.**

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 3 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3, the limitation, the “slit is mounted with an integrated circuit” is indefinite because a slit in and of itself cannot be mounted. A slit is a void or aperture or opening – a slit indicates an absence of material – and as such a void, aperture, opening, absence of material cannot be mounted.

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Claims 7-10 and 17-26 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

The omitted structural cooperative relationships are:

Claim 7 introduces a substrate as an element separate from a liquid crystal display panel. The precise relationship between the LCD panel and the substrate is unclear.

Claim 17 introduces elements of a PCB, a substrate having a plurality of conductive lines, and a TCP but fails to interrelate these elements.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 7, 8, rejected under 35 U.S.C. 102(e) as being anticipated by Chang (US 6,198,519 B1)(filed: Feb. 28, 1997)(assignee: Samsung Electronics).

Per claims 1 and 2: Chang clearly discloses a tape carrier package that is bonded to a liquid crystal display panel wherein the tape carrier package has a pad part (Figure 4, TCP panel 200, TCP out-lead bonding pads 40) bonded to pads of the liquid crystal display panel (Col. 3, Lines 6-15), and the pads are separated by a distance (Figure 4). The limitation “divided” is broadly taken to mean a distance between the pads. Divide means “to separate into two or more

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parts, areas, or groups.” (Merriam Webster’s Collegiate Dictionary, 10TH Ed.). In Chang, the pads are separated by a given width.

Per claims 7 and 8: Chang clearly discloses a tape carrier package that is bonded to a liquid crystal display panel wherein the tape carrier package has a pad part (Figure 4, TCP panel 200, TCP out-lead bonding pads 40) bonded to pads of the liquid crystal display panel (Col. 3, Lines 6-15), and the pads are separated by a distance (Figure 4). The limitation “divided” is broadly taken to mean a distance between the pads. Divide means “to separate into two or more parts, areas, or groups.” (Merriam Webster’s Collegiate Dictionary, 10TH Ed.). In Chang, the pads are separated by a given width.

As broadly interpreted, Chang also discloses a substrate (Figure 5, substrate 150) provided with pads of a driving wire (12, 13, 32, and 33) to which pads of the tape carrier package is bonded, said tape carrier package being bonded onto the substrate (Figure 5, Col. 3, Lines 5-15).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 and 7 and 8 rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka (US 6,050,830).

Per claim 1: Tanaka discloses (Figures 1-5) a pad part (2) being provided with a plurality of pads bonded to pads of an LCD panel and divided into at least two parts (notched section, 6).

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Per claim 2: The pad part is divided with having a desired width of slit therebetween (Figures 1-5).

Per claim 3: The slit is mounted with an integrated circuit and formed by removing one side of a base film provided with the pad part (Figure 1, IC 11).

Per claim 4: The slit is positioned at the center of the upper portion of the base film opposed to the pads of the liquid crystal display panel (Figures 1-5).

Per claims 7 and 8: Tanaka has a pad part (2) being provided with a plurality of pads bonded to pads of the LCD and divided into at least two parts (Figures 1-5) pads of a driving wire to which pads of the TCP is bonded, the TCP bonded onto the substrate (Cols. 2-6).

Claims 12, 14, and 15 rejected under 35 U.S.C. 102(b) as being anticipated by Kurokawa et al. (US 6,054,975).

Per claims 12, 14, and 15: Kurokawa Figure 4 discloses a tape carrier package (300) with a base film (305), a plurality of output pads (304b) on the base film, and a slit between two of the output pads. "Slit" as broadly interpreted means a long narrow cut or opening. (Merriam Webster's Collegiate Dictionary, 10TH Ed.). Therefore, a slit can be broadly read as an opening. Figure 4 shows an opening between output side bonding pads. The TCP furthermore includes an input pad (304a) and an IC chip (301).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 6,198, 519 B1) in view of Sakaguchi et al. (JP-05-265021)(published Oct. 1993).

Per claims 3 and 4: Chang does not appear to explicitly disclose that the slit is formed by removing one side of a base film provided with the pad part and that the slit is positioned at the center of the upper portion of the base film opposed to the pads of the liquid crystal display panel; however, Sakaguchi has a base film (BF1) with a plurality of slits for the purpose of facilitating alignment, preventing misalignment, and to facilitate connection (PAJ). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chang in view of Sakaguchi to facilitate alignment, prevent misalignment, and to facilitate connection.

Claims 5, 6, and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 6,198, 519 B1) in view of Kurokawa et al. (US 6,054,975).

Per claims 5, 6, and 9: Chang does not appear to explicitly include a printed circuit board mounted with circuits generating driving signals for driving the liquid crystal display panel and the particulars about the bondings of the tape carrier package and output pad; however, Kurokawa discloses a liquid crystal display wherein circuit boards supply signals to the liquid crystal display driving circuits (Col. 4, Lines 14-16) for supplying driving signals to the LCD panel. It may be implied that the TCP is bent and output pads are in a plane state as part of the mounting procedure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chang in view of Kurokawa to supply driving signals to an LCD panel.

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Claims 5 and 6 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka in view of Kurokawa et al. (US 6,054,975).

Per claims 5 and 6 and 9 : Tanaka does not appear to explicitly include a printed circuit board mounted with circuits generating driving signals for driving the liquid crystal display panel and the particulars about the bondings of the tape carrier package and output pad; however, Kurokawa discloses a liquid crystal display wherein circuit boards supply signals to the liquid crystal display driving circuits (Col. 4, Lines 14-16) for supplying driving signals to the LCD panel. It may be implied that the TCP is bent and output pads are in a plane state as part of the mounting procedure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tanaka in view of Kurokawa to supply driving signals to an LCD panel.

Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 6,198, 519 B1) in view of Kondo et al. (JP-10-170883).

Per claim 10: Chang does not appear to explicitly specify a backlight unit being installed under the substrate to irradiate a light onto the LCD panel; however, Kondo discloses a backlight for use in ambient light (PAJ). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Chang in view of Kondo for an LCD panel that can be used in ambient light.

Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka (US 6,050,830) in view of Kondo et al. (JP-10-170883).

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Per claim 10: Tanaka does not appear to explicitly specify a backlight unit being installed under the substrate to irradiate a light onto the LCD panel; however, Kondo discloses a backlight for use in ambient light (PAJ). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tanaka in view of Kondo for an LCD panel that can be used in ambient light.

Claim 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 6,198, 519 B1).

Per claim 11: Chang clearly discloses a tape carrier package that is bonded to a liquid crystal display panel wherein the tape carrier package has a pad part (Figure 4, TCP panel 200, TCP out-lead bonding pads 40) bonded to pads of the liquid crystal display panel (Col. 3, Lines 6-15), and the pads are separated by a distance (Figure 4). The limitation "divided" is broadly taken to mean a distance between the pads. Divide means "to separate into two or more parts, areas, or groups." (Merriam Webster's Collegiate Dictionary, 10TH Ed.). In Chang, the pads are separated by a given width.

Steps of bonding a liquid crystal display panel wherein the tape carrier package has a pad part (Figure 4, TCP panel 200, TCP out-lead bonding pads 40) bonded to pads of the liquid crystal display panel (Col. 3, Lines 6-15), and the pads are separated by a distance (Figure 4) and dividing a pad part into at least two parts would have been obvious to one of ordinary skill in the art at the time the invention was made for testing and preventing misalignment (Col. 1, Lines 41-44).

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Claims 13 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa et al. (US 6,054,975) in view of Inada et al. (US 5,608,559).

Per claims 13 and 16: Kurokawa does not appear to explicitly specify that the base film is made of polyimide and is flexible; however, Inada has a flexible base film of polyimide that is commonly used in the construction wiring boards (Col. 8, Lines 21-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kurokawa in view of Inada for a flexible polyimide base film used in the construction of wiring boards.

Claims 17-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa et al. (US 6,054,975) in view of Sakamoto et al. (US 5,572,346).

Per claims 17-25: Kurokawa (Figure 4) discloses a tape carrier package (300) with a base film (305), a plurality of output pads (304b) on the base film, and a slit between two of the output pads. "Slit" as broadly interpreted means a long narrow cut or opening. (Merriam Webster's Collegiate Dictionary, 10TH Ed.). Therefore, a slit can be broadly read as an opening. Figure 4 shows an opening between output side bonding pads. The TCP furthermore includes an input pad (304a) and an IC chip (301).

Kurokawa does not appear to explicitly specify a TCB input pad electrically connected to an output signal conductor of a PCB and output pads connected to conductive lines of a substrate; however, Sakamoto teaches:

[Related Art]: "A liquid crystal display (LCD) uses 9 TAB tape carrier as a means of connecting its printed circuit board to the electrodes on the glass board of its liquid crystal panel. An LCD driver chip is mounted on the TAB tape carrier. FIG. 1 shows a conventional TAB tape carrier 10 for an LCD driver

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package. FIG. 2 shows the state in which such a tape carrier is connected to a printed circuit board and the glass board of a liquid crystal panel. The TAB tape carrier 10 has an insulating film tape 11 formed of a polyimide layer, input lead conductors 12 laid on its surface, and output lead conductors 14. The TAB tape carrier 10 has a chip mounting opening 16, which provides a chip mounting site. The input leads 12 extend from the chip mounting opening 16 toward one edge of the tape and are terminated across a long slot 18 formed along this edge. The output leads 14 extend from the chip mounting opening 16 toward the other edge of the tape. On the side of the output leads 14, no opening is formed. An LCD driver chip 22 is connected to the input leads 12 and output leads 14 in the position of the chip mounting opening 16. In this manner, an LCD driver tape carrier package is formed.

When an LCD driver package is mounted on an LCD unit, the tape edge on the side of the input leads 12 is cut along line A-A (FIG. 1), so that the tips of the input leads 12 are exposed. The exposed tips of the input leads 12 are soldered to the corresponding conductors (not illustrated) of the printed circuit board 24 and the output leads 14 are connected to the corresponding panel electrodes of the LCD glass board 26. Since the output leads 14 are usually formed at a higher density than the input leads 12, they are liable to cause problems such as short-circuiting when connected, if the output leads 14 are not backed with the film tape. For this reason, the output leads 14 are connected to the glass board in a state of being supported on the insulating film tape 11. Since the glass board is flat, the output leads 14 can be connected even as they are attached to the insulating film tape 11. On the other hand, the conductors on the printed circuit board 24 are not necessarily of equal height and hence the input leads 12 are exposed so that they can adapt to such differences in height."

Sakamoto has these connections for a conventional means of connecting a TCP and PCB to a liquid crystal display panel. The connections are made with solder; however, an anisotropic conductive film can be used in place of the solder as a functional equivalent of the solder.

Sakamoto furthermore discloses that the film has anchor holes in the film for preventing twisting or wrinkling of the tape (film) due to thermal expansion (Col. 2, Lines 36-38).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kurokawa in view of Sakamoto for a conventionally connected tape carrier package, printed circuit board and LCD panel unit that prevents wrinkling of a base film due to thermal expansion.

Claim 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Kurokawa et al. (US 6,054,975) in view of Sakamoto et al. (US 5,572,346) and further in view of Kondo et al. (JP-10-170883).

Per claim 26: Kurokawa does not appear to explicitly specify a backlight; however, Kondo has a backlight for use in ambient light (PAJ). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kurokawa in view of Kondo for a backlight for use in ambient light.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

JDG

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